

## EAST Search History

| Ref # | Hits  | Search Query                               | DBs   | Default Operator | Plurals | Time Stamp       |
|-------|-------|--|---|------------------|---------|------------------|
| L1    | 8247  | (707/4,100,101,104.1).CCLS.                | USPAT;<br>USOCR   | OR               | OFF     | 2007/04/19 10:55 |
| L2    | 6     | 1 and (entropy adjacency) with partition   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2007/04/19 11:02 |
| L3    | 26    | 1 and (entropy adjacency) with measure     | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2007/04/19 11:03 |
| L4    | 1     | 1 and (entropy and adjacency) with measure | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2007/04/19 11:03 |
| L5    | 15    | 3 and partition\$3                         | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2007/04/19 11:03 |
| S1    | 2     | "20040186846"                              | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2007/04/17 12:50 |
| S2    | 1     | ("5481649").PN.                            | USPAT;<br>USOCR   | OR               | OFF     | 2006/09/16 17:21 |
| S3    | 28443 | partition\$3 with (records or data)        | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2006/09/16 17:40 |
| S4    | 1035  | S3 and (database with (tree hierarch\$4))  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2006/09/16 17:41 |

## EAST Search History

|     |       |   |   |    |    |                  |
|-----|-------|---|---|----|----|------------------|
| S5  | 28443 | partition\$3 with (records or data)           | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2006/09/16 19:34 |
| S6  | 1035  | S5 and (database with (tree hierarch\$4))     | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2006/09/16 17:47 |
| S7  | 22    | S6 and (entropy adjacency) with partition\$3  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2006/09/16 19:34 |
| S8  | 27214 | (tree or hierarch\$5) with node\$1            | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2006/09/16 18:07 |
| S9  | 4213  | S8 and cluster\$3                             | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2006/09/16 18:07 |
| S10 | 114   | S9 and (entropy adjacency) with measur\$3     | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2006/09/16 19:37 |
| S11 | 82    | S10 and partition\$3                          | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2006/09/16 18:08 |
| S12 | 23    | S11 and (entropy adjacency) same partition\$3 | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2006/09/16 18:09 |

## EAST Search History

|     |      |   |  |    |    |                  |
|-----|------|---|--|----|----|------------------|
| S13 | 499  | partition\$3 with records same database                         | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/09/16 19:34 |
| S14 | 17   | S13 and (entropy adjacency) with (partition\$3 measure)         | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/09/16 19:36 |
| S15 | 482  | S13 not S14   | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/09/16 19:36 |
| S16 | 10   | S15 and (entropy adjacency)                                     | US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/03/21 12:32 |
| S17 | 5    | ("5884305"   "6115708"   "6230153"   "6374251"   "6564202").PN. | US-PGPUB; USPAT; USOCR                             | OR | ON | 2006/09/16 19:44 |
| S18 | 1307 | partition\$3 adj2 database                                      | US-PGPUB; USPAT; USOCR                             | OR | ON | 2006/09/16 19:44 |
| S19 | 499  | S18 and (measur\$3)   | US-PGPUB; USPAT; USOCR                             | OR | ON | 2006/09/16 19:45 |
| S20 | 196  | S19 and optimization  | US-PGPUB; USPAT; USOCR                             | OR | ON | 2006/09/16 19:45 |
| S21 | 99   | S20 and cluster\$3  | US-PGPUB; USPAT; USOCR                             | OR | ON | 2006/09/16 19:45 |
| S22 | 13   | S21 and equal with size   | US-PGPUB; USPAT; USOCR                             | OR | ON | 2006/09/16 19:47 |
| S23 | 81   | S21 and variable  | US-PGPUB; USPAT; USOCR                             | OR | ON | 2006/09/16 19:47 |
| S24 | 77   | S23 and group   | US-PGPUB; USPAT; USOCR                             | OR | ON | 2006/09/16 19:47 |

## EAST Search History

|     |      |  |   |    |     |                  |
|-----|------|--|---|----|-----|------------------|
| S25 | 64   | S24 not S22  | US-PGPUB;<br>USPAT;<br>USOCR                                      | OR | ON  | 2006/09/16 19:47 |
| S26 | 53   | S25 and linear                                       | US-PGPUB;<br>USPAT;<br>USOCR                                      | OR | ON  | 2006/09/16 19:47 |
| S27 | 41   | S26 and (partition\$3 with records)                  | US-PGPUB;<br>USPAT;<br>USOCR                                      | OR | ON  | 2006/09/16 19:48 |
| S28 | 2    | S27 and (entropy adjacency)                          | US-PGPUB;<br>USPAT;<br>USOCR                                      | OR | ON  | 2006/09/16 19:48 |
| S29 | 1    | ("6490582").PN.                                      | USPAT;<br>USOCR   | OR | OFF | 2006/09/16 20:00 |
| S30 | 0    | (partition\$3 with record) same (space with science) | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2006/09/17 22:01 |
| S31 | 0    | (partition\$3 with record) same (space same science) | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2006/09/17 22:01 |
| S32 | 2144 | (space with science)                                 | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2006/09/17 22:01 |
| S33 | 75   | S32 and (entropy)                                    | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2006/09/17 22:01 |
| S34 | 26   | S33 and (partition\$3)                               | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2006/09/17 22:02 |
| S35 | 5    | S34 and @ad<"19990930"                               | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2006/09/17 22:02 |

## EAST Search History

|     |     |   |   |    |     |                  |
|-----|-----|---|---|----|-----|------------------|
| S36 | 1   | ("6741983").PN.                           | USPAT;<br>USOCR   | OR | OFF | 2007/03/21 12:09 |
| S37 | 3   | measur\$3 with (entropy and adjacency)    | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2007/03/21 12:32 |
| S38 | 123 | entropy and adjacency                     | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2007/04/17 16:20 |
| S39 | 3   | (entropy and adjacency) with measur\$5    | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2007/04/17 12:51 |
| S40 | 4   | partition\$3 same (entropy and adjacency) | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2007/04/17 16:21 |
| S41 | 427 | partition\$3 same adjacency               | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2007/04/17 16:22 |
| S42 | 10  | S41 and measur\$5 with adjacency          | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2007/04/18 16:52 |
| S43 | 282 | (entropy adjacency) with partition        | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2007/04/18 12:36 |
| S44 | 4   | ("entropy/adjacency") with partition      | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2007/04/18 12:36 |

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|     |     |  |   |    |    |                  |
|-----|-----|--|---|----|----|------------------|
| S45 | 4   | (entropy and adjacency) with partition | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 12:53 |
| S46 | 4   | (entropy and adjacency) with test      | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 12:53 |
| S47 | 3   | (entropy and adjacency) with measure   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 12:53 |
| S48 | 172 | "allele pairs"                         | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 15:41 |
| S49 | 3   | S48 and entropy                        | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 15:41 |
| S50 | 19  | S48 and uncertain\$2                   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 15:46 |
| S51 | 5   | S48 and adjoin\$3                      | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 15:46 |
| S52 | 6   | Birdwell-John-D.inv.                   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 16:44 |

## EAST Search History

|     |    |                    |   |    |    |                  |
|-----|----|--------------------|---|----|----|------------------|
| S53 | 6  | Wang-Tse-Wei.inv.  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 16:44 |
| S54 | 4  | Horn-Roger-D.inv.  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 16:46 |
| S55 | 12 | Yadav-Puneet.inv.  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 16:50 |
| S56 | 3  | Icove-david-j.inv. | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2007/04/18 16:50 |


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Relevance scale

- 1 Cluster ensembles --- a knowledge reuse framework for combining multiple partitions

Alexander Strehl, Joydeep Ghosh

 March 2003 **The Journal of Machine Learning Research**, Volume 3

**Publisher:** MIT Press

 Full text available: [pdf\(842.50 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper introduces the problem of combining multiple partitionings of a set of objects into a single consolidated clustering *without* accessing the features or algorithms that determined these partitionings. We first identify several application scenarios for the resultant 'knowledge reuse' framework that we call *cluster ensembles*. The cluster ensemble problem is then formalized as a combinatorial optimization problem in terms of shared mutual information. In addition to a direct ...

**Keywords:** cluster analysis, clustering, consensus functions, ensemble, knowledge reuse, multi-learner systems, mutual information, partitioning, unsupervised learning

- 2 Session 8 (tuesday, june 6th--3:15-4:30 pm): Optimal succinct representations of planar maps

Luca Castelli Aleardi, Olivier Devillers, Gilles Schaeffer

 June 2006 **Proceedings of the twenty-second annual symposium on Computational geometry SCG '06**
**Publisher:** ACM Press

 Full text available: [pdf\(271.32 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper addresses the problem of representing the connectivity information of geometric objects using as little memory as possible. As opposed to raw compression issues, the focus is here on designing data structures that preserve the possibility of answering incidence queries in constant time. We propose in particular the first optimal representations for 3-connected planar graphs and triangulations, which are the most standard classes of graphs underlying meshes with spherical topology. Opt ...

**Keywords:** compression, geometric data structures, graph encoding, mesh, planar maps, succinct data structures

- 3 Research track paper: Combining partitions by probabilistic label aggregation

Tilman Lange, Joachim M. Buhmann  
August 2005 **Proceeding of the eleventh ACM SIGKDD international conference on Knowledge discovery in data mining KDD '05**

Publisher: ACM Press

Full text available:  pdf(252.35 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Data clustering represents an important tool in exploratory data analysis. The lack of objective criteria render model selection as well as the identification of robust solutions particularly difficult. The use of a stability assessment and the combination of multiple clustering solutions represents an important ingredient to achieve the goal of finding useful partitions. In this work, we propose a novel way of combining multiple clustering solutions for both, hard and soft partitions: the appro ...

**Keywords:** clustering, consensus partition, re-sampling

- 4 [Session 15A: 2-source dispersers for sub-polynomial entropy and Ramsey graphs beating the Frankl-Wilson construction](#)

 Boaz Barak, Anup Rao, Ronen Shaltiel, Avi Wigderson  
May 2006 **Proceedings of the thirty-eighth annual ACM symposium on Theory of computing STOC '06**

Publisher: ACM Press

Full text available:  pdf(213.28 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The main result of this paper is an explicit disperser for two independent sources on  $n$  bits, each of entropy  $k=n^{o(1)}$ . Put differently, setting  $N=2^n$  and  $K=2^k$ , we construct explicit  $N \times N$  Boolean matrices for which no  $K \times K$  submatrix is monochromatic. Viewed as adjacency matrices of bipartite graphs, this gives an explicit construction of  $K$ -Ramsey bipartite graphs of size  $N$ . This greatly improves the previous bound of  $k=o(n)$  of Barak, Kindler, Shaltiel, Suda ...

**Keywords:** Ramsey graphs, dispersers, extractors, independent sources

- 5 [Estimating point-to-point and point-to-multipoint traffic matrices: an information-theoretic approach](#)

Yin Zhang, Matthew Roughan, Carsten Lund, David L. Donoho  
October 2005 **IEEE/ACM Transactions on Networking (TON)**, Volume 13 Issue 5

Publisher: IEEE Press

Full text available:  pdf(686.66 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Traffic matrices are required inputs for many IP network management tasks, such as capacity planning, traffic engineering, and network reliability analysis. However, it is difficult to measure these matrices directly in large operational IP networks, so there has been recent interest in inferring traffic matrices from link measurements and other more easily measured data. Typically, this inference problem is ill-posed, as it involves significantly more unknowns than data. Experience in many scie ...

**Keywords:** SNMP, failure analysis, information theory, minimum mutual information, point-to-multipoint, point-to-point, regularization, traffic engineering, traffic matrix estimation

- 6 [Traffic engineering: An information-theoretic approach to traffic matrix estimation](#)

Yin Zhang, Matthew Roughan, Carsten Lund, David Donoho

-  August 2003 **Proceedings of the 2003 conference on Applications, technologies, architectures, and protocols for computer communications SIGCOMM '03**

**Publisher:** ACM Press

Full text available: .pdf(421.04 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Traffic matrices are required inputs for many IP network management tasks: for instance, capacity planning, traffic engineering and network reliability analysis. However, it is difficult to measure these matrices directly, and so there has been recent interest in inferring traffic matrices from link measurements and other more easily measured data. Typically, this inference problem is ill-posed, as it involves significantly more unknowns than data. Experience in many scientific and engineering f ...

**Keywords:** SNMP, information theory, minimum, mutual information, regularization, traffic engineering, traffic matrix estimation

- 7 Multi Relational Data Mining (MRDM): State of the art of graph-based data mining 

 Takashi Washio, Hiroshi Motoda

July 2003 **ACM SIGKDD Explorations Newsletter**, Volume 5 Issue 1

**Publisher:** ACM Press

Full text available: .pdf(1.20 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

The need for mining structured data has increased in the past few years. One of the best studied data structures in computer science and discrete mathematics are graphs. It can therefore be no surprise that graph based data mining has become quite popular in the last few years. This article introduces the theoretical basis of graph based data mining and surveys the state of the art of graph-based data mining. Brief descriptions of some representative approaches are provided as well.

**Keywords:** data mining, graph, graph-based data mining, path, structured data, tree

- 8 Paper session KM-3 (knowledge management): classification & clustering: Clustering 

 high-dimensional data using an efficient and effective data space reduction

Ratko Orlandic, Ying Lai, Wai Gen Yee

October 2005 **Proceedings of the 14th ACM international conference on Information and knowledge management CIKM '05**

**Publisher:** ACM Press

Full text available: .pdf(204.82 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper introduces a new algorithm for clustering data in high-dimensional feature spaces, called GARDEN<sub>HD</sub>. The algorithm is organized around the notion of data space reduction, i.e. the process of detecting dense areas (dense cells) in the space. It performs effective and efficient elimination of empty areas that characterize typical high-dimensional spaces and an efficient adjacency-connected agglomeration of dense cells into larger clusters. It produces a compact represen ...

**Keywords:** data clustering, data dimensionality, data mining, space partitioning

- 9 Content 2: image clustering: Iteratively clustering web images based on link and 

 attribute reinforcements

Xin-Jing Wang, Wei-Ying Ma, Lei Zhang, Xing Li

November 2005 **Proceedings of the 13th annual ACM international conference on Multimedia MULTIMEDIA '05**

**Publisher:** ACM Press

Full text available:  pdf(248.02 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Image clustering is an important research topic which contributes to a wide range of applications. Traditional image clustering approaches are based on image content features only, while content features alone can hardly describe the semantics of the images. In the context of Web, images are no longer assumed homogeneous and "flat" distributed but are richly structured. There are two kinds of reinforcements embedded in such data: 1) the reinforcement between attributes of different data types (int ...

**Keywords:** image clustering, iterative reinforcement, link mining

10 **Distributional Scaling: An Algorithm for Structure-Preserving Embedding of Metric and Nonmetric Spaces** 

Michael Quist, Golan Yona

December 2004 **The Journal of Machine Learning Research**, Volume 5

**Publisher:** MIT Press

Full text available:  pdf(508.39 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present a novel approach for embedding general metric and nonmetric spaces into low-dimensional Euclidean spaces. As opposed to traditional multidimensional scaling techniques, which minimize the distortion of pairwise distances, our embedding algorithm seeks a low-dimensional representation of the data that preserves the structure (geometry) of the original data. The algorithm uses a hybrid criterion function that combines the pairwise distortion with what we call the geometric distortion. T ...

11 **Session P12: meshes: Efficient compression and rendering of multi-resolution meshes** 

Zachi Karni, Alexander Bogomjakov, Craig Gotsman

October 2002 **Proceedings of the conference on Visualization '02 VIS '02**

**Publisher:** IEEE Computer Society

Full text available:  pdf(3.02 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

We present a method to code the multiresolution structure of a 3D triangle mesh in a manner that allows progressive decoding and efficient rendering at a client machine. The code is based on a special ordering of the mesh vertices which has good locality and continuity properties, inducing a natural multiresolution structure. This ordering also incorporates information allowing efficient rendering of the mesh at all resolutions using the contemporary vertex buffer mechanism. The performance of o ...

**Keywords:** geometry coding, progressive compression, rendering, wavelets

12 **Clustering gene expression patterns** 

Amir Ben-Dor, Zohar Yakhini

April 1999 **Proceedings of the third annual international conference on Computational molecular biology RECOMB '99**

**Publisher:** ACM Press

Full text available:  pdf(1.06 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

13 **Manifolds and modeling: Surface modeling and parameterization with manifolds** 

Cindy Grimm, Denis Zorin

July 2005 **ACM SIGGRAPH 2005 Courses SIGGRAPH '05**

**Publisher:** ACM Press

Full text available:  pdf(6.69 MB) Additional Information: [full citation](#), [references](#)



- 14 Surface modeling and parameterization with manifolds: Surface modeling and parameterization with manifolds: Siggraph 2006 course notes

 **Author presentation videos are available from the citation page**

Cindy Grimm, Denis Zorin

July 2006 **ACM SIGGRAPH 2006 Courses SIGGRAPH '06**

Publisher: ACM Press

Full text available:  pdf(17.85 MB)

 mov(251.00 bytes)

Additional Information: [full citation](#), [abstract](#), [references](#)

Many diverse applications in different areas of computer graphics, including geometric modeling, rendering and animation, require dealing with sets which cannot be easily represented with a single function on a simple domain in a Euclidean space: Examples include surfaces of nontrivial topology, environment maps, reflection/transmission functions, light fields, configuration spaces of animation skeletons, and others. In most cases these objects are described as collections of functions defined o ...



- 15 Variational shape approximation

 David Cohen-Steiner, Pierre Alliez, Mathieu Desbrun

August 2004 **ACM Transactions on Graphics (TOG) , ACM SIGGRAPH 2004 Papers SIGGRAPH '04**, Volume 23 Issue 3

Publisher: ACM Press

Full text available:  pdf(783.93 KB)

 mov(33:47 MIN)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

A method for concise, faithful approximation of complex 3D datasets is key to reducing the computational cost of graphics applications. Despite numerous applications ranging from geometry compression to reverse engineering, efficiently capturing the geometry of a surface remains a tedious task. In this paper, we present both theoretical and practical contributions that result in a novel and versatile framework for geometric approximation of surfaces. We depart from the usual strategy by casting ...

**Keywords:** Lloyd's clustering algorithm, anisotropic remeshing, geometric approximation, geometric error metrics, surfaces



- 16 Speech repairs, intonational phrases, and discourse markers: modeling speakers' utterances in spoken dialogue

Peter A. Heeman, James F. Allen

December 1999 **Computational Linguistics**, Volume 25 Issue 4

Publisher: MIT Press

Full text available:

 pdf(3.03 MB) 

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

[Publisher Site](#)

Interactive spoken dialogue provides many new challenges for natural language understanding systems. One of the most critical challenges is simply determining the speaker's intended utterances: both segmenting a speaker's turn into utterances and determining the intended words in each utterance. Even assuming perfect word recognition, the latter problem is complicated by the occurrence of speech repairs, which occur where speakers go back and change (or repeat) something they just said. The word ...

**17 Feature-based similarity search in 3D object databases**

Benjamin Bustos, Daniel A. Keim, Dietmar Saupe, Tobias Schreck, Dejan V. Vranić  
December 2005 **ACM Computing Surveys (CSUR)**, Volume 37 Issue 4

**Publisher:** ACM Press

Full text available:  [pdf\(5.29 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The development of effective content-based multimedia search systems is an important research issue due to the growing amount of digital audio-visual information. In the case of images and video, the growth of digital data has been observed since the introduction of 2D capture devices. A similar development is expected for 3D data as acquisition and dissemination technology of 3D models is constantly improving. 3D objects are becoming an important type of multimedia data with many promising appl ...

**Keywords:** 3D model retrieval, content-based similarity search

**18 Inverted files for text search engines**

Justin Zobel, Alistair Moffat  
July 2006 **ACM Computing Surveys (CSUR)**, Volume 38 Issue 2

**Publisher:** ACM Press

Full text available:  [pdf\(944.29 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The technology underlying text search engines has advanced dramatically in the past decade. The development of a family of new index representations has led to a wide range of innovations in index storage, index construction, and query evaluation. While some of these developments have been consolidated in textbooks, many specific techniques are not widely known or the textbook descriptions are out of date. In this tutorial, we introduce the key techniques in the area, describing both a core impl ...

**Keywords:** Inverted file indexing, Web search engine, document database, information retrieval, text retrieval

**19 The complexity of counting graph homomorphisms (extended abstract)**

Martin Dyer, Catherine Greenhill

February 2000 **Proceedings of the eleventh annual ACM-SIAM symposium on Discrete algorithms SODA '00**

**Publisher:** Society for Industrial and Applied Mathematics

Full text available:  [pdf\(961.39 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**20 Co-clustering documents and words using bipartite spectral graph partitioning**

Inderjit S. Dhillon

August 2001 **Proceedings of the seventh ACM SIGKDD international conference on Knowledge discovery and data mining KDD '01**

**Publisher:** ACM Press

Full text available:  [pdf\(537.79 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Both document clustering and word clustering are well studied problems. Most existing algorithms cluster documents and words separately but not simultaneously. In this paper we present the novel idea of modeling the document collection as a bipartite graph between documents and words, using which the simultaneous clustering problem can be posed as a bipartite graph partitioning problem. To solve the partitioning problem, we use a new spectral co-clustering algorithm that uses the second left and ...

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